

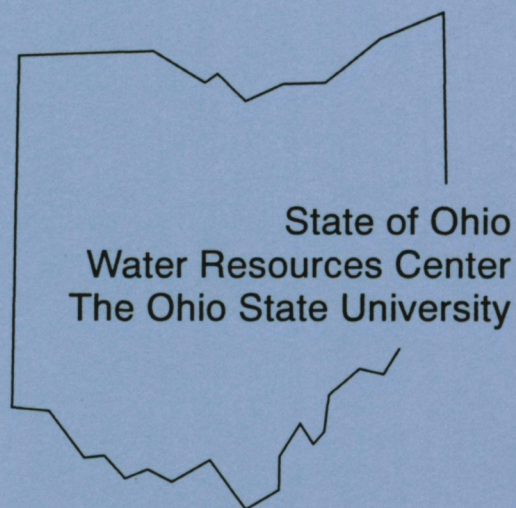
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Report No. GRO-2691

**FISCAL YEAR 1996  
PROGRAM REPORT**

**Earl Whitlatch**  
Director

United States  
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State of Ohio  
Water Resources Center  
The Ohio State University

# **FISCAL YEAR 1996 PROGRAM REPORT**

**Ohio Water Resources Center  
The Ohio State University  
Columbus, Ohio**

**Report No.  
GRO-2691**

**Fiscal Year 1996 Program Report  
Grant No. 1434-HQ-96-GRO2691**

**for**

**U. S. Department of the Interior  
Geological Survey**

**by**

**Ohio Water Resources Center  
The Ohio State University  
Columbus, OH 43210-1057**

**Earl Whitlatch, Director**

**May, 1997**

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The contents of the publication do not necessarily reflect the views and policies of the Department of the Interior, nor does mention of trade names or commercial products constitute their endorsement by the United States Government.

## **ABSTRACT**

Most of Ohio's water problems are associated with water quality. Of primary concern are the sediments, nutrients and acids in the surface waters from urban, agricultural and mining areas, and toxic and hazardous wastes that threaten the ground and surface waters. The research and technology transfer program consisted of the following activities: The technology transfer program disseminated information about water resources in Ohio to local and state decision-makers. Professional training and development was also provided to 1,000 water resources managers throughout the year. In addition, there were two 2-day facilitator workshops for 100 educators, and 99 six-hour workshops where 1,600 educators participated in water resources classroom activities. These people in turn provided water education to 40,000 Ohio K-12 students in the year.

One two-year research project was funded in the regional competition and a synopsis of it will be submitted to the USGS in September. That research project supported one research student in the Department of Geological Sciences at the Ohio State University.

## **Table of Contents**

	<b>Page</b>
<b>Abstract</b>	
<b>Water Problems and Issues in Ohio</b>	<b>1</b>
<b>Program Goals and Priorities</b>	<b>1</b>
<b>Regional Research Priorities</b>	<b>1</b>
<b>Information Transfer Activities</b>	<b>2</b>
<b>Water Luncheon Seminar</b>	<b>2</b>
<b>Water Management Association of Ohio</b>	<b>5</b>
<b>Ohio Water Education Project</b>	<b>5</b>
<b>Cooperative Arrangements</b>	<b>6</b>
<b>Water Resources Center Advisory Board</b>	<b>8</b>
<b>Training Arrangements</b>	<b>9</b>
<b>Recent Publications</b>	<b>10</b>



## **Water Problems and Issues in Ohio**

Water is one of Ohio's most important natural resources. Bounded on the north by Lake Erie and on the south by the Ohio River and containing other extensive ground and surface waters, Ohio has an adequate supply of water to meet its immediate needs. However, the combination of large, heavily industrialized urban centers; extensive agricultural activities; high volume coal production and large coal reserves; and the associated demands of new energy production continues to cause concerns related to water quality and water management. In addition, extreme hydrologic events cause localized problems of both excessive water and deficiencies at times.

## **Program Goals and Priorities**

The 1996 program objectives as outlined by recent legislation is to:

- A. Conduct research relative to important water resource problems of the Region
- B. Promote the dissemination and application of the results of the research involving these problems; and
- C. Assist in the training of scientists in relevant water resource fields.

## **Regional Research Priorities**

- 1. Wetlands processes and management
- 2. Watershed processes and management
- 3. Drinking water quality and availability and source protection
- 4. Wastewater treatment for small communities
- 5. Urban water infrastructure systems
- 6. Non-point source pollution reduction - better management practices
- 7. Groundwater and surface water quality
- 8. Remediation of contaminated sources
- 9. Conjunctive use - ground and surface water interface or connectivity
- 10. Irrigation systems and water-use efficiency
- 11. Atmospheric contamination of water sources

Proposals that include a strong educational component (student support) and/or are from faculty beginning their careers receive some preference.

## **Information Transfer Activities**

The Water Resources Center administratively is part of the Department of Civil and Environmental Engineering and Geodetic Sciences and is physically located in the Agricultural Engineering Building on The Ohio State University. This location provides numerous opportunities to work closely and share ideas with researchers in the College of Agriculture, the OSU Agricultural Engineering Cooperative Extension Service, the United States Agricultural Research Service, the Farm Science Review of Ohio, as well as the College of Engineering. A series of tasks were continued to transfer and disseminate information developed by researchers affiliated with the Water Resources Center to a wide range of state, federal, county and municipal agencies; the private sector, the academic community and private citizens throughout Ohio.

## **Water Luncheon Seminar**

The Water Resources Center co-sponsored four Water Luncheon Seminar Programs for the sixteenth year to the water resources community in Central Ohio. These programs are developed cooperatively with The Ohio Department of Natural Resources (ODNR), the Ohio Environmental Protection Agency (OEPA), the Natural Resources Conservation Service (NRCS), the District Office of the United States Geological Survey (USGS) and The Ohio State University Cooperative Extension Service. These seminars continue to attract more than 350 water resources professionals annually from Federal, State, County and Municipal Agencies, the private sector and the academic community. These seminars provide a relaxed forum to discuss current state, federal and local water policy issues, problems, programs and research results. In addition to providing speakers for every sixth meeting, the Water Resources Center provides the administrative and financial support for the seminars. The Center also provides technical equipment and other support to assist the speakers with their presentations. The programs which were presented during the 1996 series follows.



### Water Luncheon Seminar FY 1996

<b>Date</b>	<b>Speaker/Agency</b>	<b>Topic</b>
March 12, 1996	Larry Brown, Associate Professor OSU Extension Service OSU Department of Agricultural Engineering	Modeling Drainage Design Parameters to Produce Runoff from Wastewater Irrigated Cropland
May 14, 1996	Gary Overmier, Project Coordinator USDA Natural Resources Conservation District	Port of Toledo/Maumee River Basin Sediment Reduction Project
October 8, 1996	Mark Bamberger, Ph.D., Geologist Drinking & Ground Waters Section Ohio Environmental Protection Agency	Geochemical Fingerprinting of Ohio's Ground Water Aquifer Systems
January 21, 1997	Dr. Keith Bedford, Chair Department of Civil & Environmental Engr. & Geodetic Sciences The Ohio State University	Great Lakes Forecasting System

### Other Conferences and Seminars the Water Resources Center Co-Sponsored or Supported in FY 1996

<b>Date</b>	<b>Program</b>	<b>Co-Sponsors</b>
March 3, 1996	Project WET and the Ohio Water Education Program Carol Moody & Jean Morris	Project DISCOVERY
March 6, 1996	Water Education Information Workshop - The Ohio Water Education Program - Carol Moody & Jean Morris	City of Columbus, Division of Water - AWWA - WMAO- OWEA-SWCD-OSU Extension - OTCO -ODNR
March 12-14, 1996	Project WET Facilitator Training Workshop - Ashland County	The Ohio Water Education Program
March 18, 1996	Cincinnati - Water Festival Demonstrations/Information/ Presentations	The Ohio Water Education Program
May 4, 1996	Environmental Education Council of Ohio Conference	The Ohio Water Education Program

May 11, 1996	Greenways Workshop/City of Columbus	The Ohio Water Education Program and Franklin Soil and Water Conservation District
May 16, 1996	Geographic Information Systems Applications for Water Resources, Data, New Applications and Projects Conference	Water Management Association of Ohio
October 25-26, 1996	Project WET Advanced Leadership Workshop	Ohio Water Education Program
November 13-14, 1996	Water Management Association of Ohio - 25th Anniversary Annual Meeting	Water Management Association of Ohio
November 14, 1996	Wayne Nichols Lecture Series Michael Donahoe, Executive Director Great Lakes Commission  Policies Related to the Great Lakes with Focus on Devolution of Federal-Level Policies at the State, Local and Regional Levels/Watershed Management and Remedial Action	School of Natural Resources The Ohio State University

## **Publications and Information Dissemination Activities**

The Center continued meeting with the leading water resources officials in the state for the purposes of sharing information on current water management and policy issues; seeking continued support for our water research program and disseminating the information and technology developed through this program and others at the universities throughout the state and region. A third of the phonecalls to Center are public information calls requesting information on water issues.

## **Water Management Association of Ohio (WMAO)**

The Water Resources Center continued for the eighth year to be the administrative office for the Water Management Association of Ohio (WMAO). This not-for-profit, 275 member, state-wide organization promotes and supports the development, conservation, control, protection and utilization of the water resources of Ohio for all beneficial purposes. It is the only Ohio organization that is solely concerned with managing Ohio's water. The WRC provides staff support, office space and equipment to WMAO as a portion of the information transfer program. During this grant year a research project was developed to support the Center's activities on this project.

## **Ohio Water Education Program (OWEP)**

The Ohio Water Education Program (OWEP) began in Ohio in the Fall of 1992 with the Ohio Department of Natural Resources and the Water Resources Center. A Memorandum of Understanding supporting this project has been signed by the Water Management Association of Ohio/Water Resources Foundation of Ohio, the Ohio Department of Natural Resources, the Ohio Environmental Protection Agency and the Water Resources Center. There are two functions to this program. The first provides a database of water education materials, projects, and supplies available for water education in Ohio. The second segment of this project is sponsoring Project WET - Water Education for Teachers. This is a national program for students in grades K-12 for interdisciplinary water resources education. The Center has donated office space, telephone and fax facilities, postage and provided substantial administrative support and services for this project. This project is a major part of the Center's information transfer program.

Two leadership training workshops were held in FY 1996 providing educators with information on Project WET and Wonders of Wetlands. More than 100 teachers attended these two-day training workshops which consisted of hands-on projects, on-site field visits to wetlands, and a computer training site. The Ohio Water Education Program has a Home Page and instructions on how to access it were also included in the training. In the fiscal year there were 99 6-hour Project WET Workshops held in Ohio where 1,600 people received instruction and materials on Project WET. These 1,600 people in turn each teach approximately 25 student a year, meaning more than 40,000 Ohio students have had water resources education through the project this year. In addition to providing administrative support, the Center staff gave numerous promotional presentations and demonstrations for the program. Further support to this activity was provided through the Water Resources Foundation of Ohio.

## **Cooperative Arrangements**

### **Program Development**

Section 104 of the Water Resources Research Act directs the Secretary of the Interior to administer program grants to Institutes and Centers established within the States and certain other similar jurisdictions for research, information transfer, and training that will assist the Nation in augmenting water-resources science and technology. Responsibility for administration of this program has been delegated to the U. S. Geological Survey (USGS).

Congressional conference committee language has changed the way Federal funds were awarded under the State Water Institute Program in fiscal year (FY) 1996. Funds will be awarded in two separate parts. One part directed a base grant (\$20,000) for each Institute (\$1.1 million) while the other part created a competitive grant program for the remaining funds (\$3.22 million). The Regional Competitive Grant Program (RCGP) application/solicitation review and selection process was coordinated by a lead Institute in each of four Regions.

The Ohio State Water Resources Research Program in Fiscal Year 1996 began with a call for pre-proposals mailed to administrators and qualified faculty investigators at more than 40 private and public colleges and universities throughout Ohio. This announcement contained the research priorities identified for the 13-state North Central Region that was created by newly enacted legislation.

### **Federal Guidelines**

Of the 500 proposal packages mailed to potential investigators, there were sixteen preliminary proposals submitted by fifteen researchers. Central State University, an historically black university, was one of the colleges to which materials were sent, but they did not submit any pre-proposals.

### **Evaluation/Selection Procedures**

Sixteen pre-proposals from six universities and colleges throughout the state were submitted for evaluation and consideration. These pre-proposals were subjected to a review by all of the members of the Water Resources Center's Advisory Committee. In addition, these pre-proposals were distributed to the various divisions within the principal state and federal water-related agencies in the State by the representatives of these agencies who serve on the Advisory Committee, requesting that the divisions review the proposals. The four agencies included in this evaluation were the Ohio Department of Natural Resources, the Ohio Environmental Protection Agency, the District Office of the United States Geological Survey and the Agricultural Research Service in the United States Department of Agriculture.

The results of these reviews were presented at a meeting of the Advisory Committee where this panel selected four of the pre-proposals and instructed the Center's Director to request fully developed proposals from the investigators for submission to the North Central Region Competition. Of these selected pre-proposals, three of them were from The Ohio State University and one was from the University of Cincinnati.

The four selected pre-proposals were developed more fully and were submitted as full proposals to Nebraska to the North Central Region for competition with projects from each of the other 12 states in the region. Four proposals was the maximum amount any state could submit to the regional competition. The 52 proposals were distributed to technical reviewers throughout the nation and ranked according to the points indicated by the technical reviews. The top twenty-five ranked projects in the region were then distributed to the Directors throughout the region for review. The Directors considered the technical rankings, priorities of the region, fiscal budgets, thoroughness of the application, training and professional level of the principal investigator as they selected the top 15 projects to award. Ohio had three projects in the top 25 projects, one of which was ranked number one, but only one of the Ohio projects ultimately received funding. That project was: "Sunlight Induced Degradation of Agricultural Pollutants in Wetlands", by Yu-Peng Chin, Geological Sciences Department of The Ohio State University for \$40,080 for 2 years.

## **Regional Cooperative Initiatives**

The Ohio State University has agreed to continue as a Charter Member of the Ohio River Basin Research and Education Consortium, and the Director of the Water Resources Center has continued to serve as one of the University's three representatives to the Consortium. The Director is a member of the Universities Council on Water Resources and participates in the regional and national meetings of the National Institutes for Water Resources.

## **Program Management**

The Water Resources Center Director contacts the Principal Investigator on the research project to discuss progress, budgetary activity, and future activities. Progress Reports or Completion Reports will be prepared by the Principal Investigator.

The investigators are urged to publish the results of their findings in the technical literature of their major disciplines and in other journals that are appropriate to the topic of their research. They are also encouraged and invited to present their findings at the Water Luncheon Seminar that is a part of the information transfer program.

## **Water Resources Center Advisory Committee**

### **College of Engineering**

Dr. L-S Fan  
Chair, Chemical Engineering

Dr. E. Earl Whitlatch  
Director, Water Resources Center

### **School of Architecture**

Dr. Steven I. Gordon  
City and Regional Planning

Professor John W. Simpson  
Landscape Architecture

### **College of Biological Sciences**

Dr. Jeffrey Reutter  
Center for Lake Erie Area Research

Dr. David Culver  
Zoology

### **College of Mathematical and Physical Sciences**

Dr. E. Scott Bair  
Geological Sciences Department

### **College of Agriculture**

### **School of Natural Resources**

Dr. Robert L. Vertrees  
Resource Management

### **Ohio Environmental Protection Agency**

Dr. John Estenik

### **Ohio Department of Natural Resources**

Michele Willis, Chief  
Division of Water

### **United States Geological Survey**

Steve Hindall  
District Chief

### **United States Department of Agriculture**

Dr. Norman Fausey  
Agricultural Research Service

### **Training Accomplishments**

<b>Field of Study</b>	<b>Undergraduate</b>	<b>Master's</b>	<b>Ph. D.</b>	<b>Total</b>
<b>Geology Hydrogeology</b>			1	1
<b>Total</b>			1	1



## **Recent Publications From Past Water Resources Center Projects**

### **Manuscripts**

Chin, Yu-Ping, Kimble, Kathi D., Swank C. Robin, (1995), The sorption of 2-methylnaphthalene by Rossburg Soil in the absence and presence of a nonionic surfactant. Journal of Contaminant Hydrology, June 1995.

Chin, Yu-Ping, Kathi D. Kimble, (1994) The sorption of polycyclic aromatic hydrocarbons by soils in low-methanol/water mixtures. Journal of Contaminant Hydrology, July 1994.